# APPENDIX M -- A SUMMARY OF THE OTHER PLANNING AND IMPLEMENTATION EFFORTS IN THE BASIN

## CONTENTS

## United States Geological Service (USGS)

USGS is currently responsible for maintaining the flow station located in the upstream portion of Kitching Creek. Three additional flow stations have been proposed for construction at the confluences where Kitching Creek, Hobe Ditch, and Cypress Creek flow into the Northwest Fork of the Loxahatchee River. It is projected that these flow stations will be maintained cooperatively by USGS and the SFWMD for at least five years following their installation. Flow, salinity readings at 20% and 80% of the total depth, temperature, and surface water elevations will be collected. An additional four monitoring stations are proposed at the North Jetty, the Boy Scout Dock, the mouth of the North Fork, and the mouth of Kitching Creek to provide additional data for the Hydrodynamic/Salinity Model developed for the NW fork of the Loxahatchee River. These stations will record water elevation, temperature, and salinity (near the surface and near the bottom) on a continuous basis approximately every fifteen minutes. USGS will be responsible for collecting the data from monitoring sites on a quarterly basis and preparing an annual report.

## Environmental Protection Agency (EPA)

In 1994, the EPA initiated the Loxahatchee River Basin Wetland Planning Project to identify wetlands in the basin and provide information about the functions and values of these wetlands. The EPA assisted Martin County in gathering data within the 28,000 acres project area and helped to coordinate the project activities of the various agencies involved.

## Florida Department of Environmental Protection (FDEP)

Section 9 of Chapter 83-358, Laws of Florida outlines the role that the Florida Department of Environmental Protection plays in protecting the Loxahatchee River and states that “the department shall have full and exclusive authority to adopt rules concerning and to regulate activities within the river area having a direct and substantial adverse effect on any resource value within the river area”. They are mandated with managing the Wild and Scenic portion of the Northwest Fork of the Loxahatchee River and the land within Jonathon Dickinson State Park. In 1997, the DEP launched its ecosystem management initiative in the Loxahatchee River watershed. The first component of this initiative was the development of an action plan to identify the current gaps in environmental protection and how various projects may assist in closing them. Other components included an aggressive public education component with numerous public workshops, a full watershed brochure, a quarterly newsletter, and a speaker bureau, and the establishment of an exotic plant committee responsible for carrying out workshops and monthly exotic plan removal on public lands (FDEP Loxahatchee River Watershed page).

## The Loxahatchee River Environmental Control District (LRD)

The Loxahatchee River Environmental Control District (aka. LRD) was established in 1971 to meet the local needs of water supply, wastewater management, and storm drainage within the Loxahatchee River watershed. Chapter 71-882, Special Acts of Florida, authorizes the LRD to implement various planning, regulatory, and operational functions to meet those needs. The District plays an active role in wastewater management, by operating a regional wastewater treatment system that covers the majority of the Loxahatchee basin east of I-95, conducts aquatic monitoring on the Loxahatchee River, and provides information and environmental education opportunities to the public. The LRD developed a water quality index for the Loxahatchee River, similar to the one created by the FDEP, and generates semi-annual reports, describing the quality of surface waters throughout the basin. Other duties include maintenance of the WildPine Ecological Laboratory, which is open to the public and scientific community for the purpose of gathering further insight into the various processes of the riverine system, and involvement in a cooperative venture with the Friends of the Loxahatchee to increase understanding and encourage public participation in river issues. Additional information on the Loxahatchee River Environmental Control District can be found at www.loxahatcheeriver.org/home.html.

## Loxahatchee River Management Coordinating Council (LRMCC)

This council was established in 1983 by the SFWMD and the FDEP, as directed by the Laws of Florida, Section 83-358.5, to ensure the effective management of projects on the Northwest Fork involving various government agencies. The LRMCC is composed of one representative from the following agencies; U.S. Department of the Interior, Department of Environmental Regulation (DERM), Department of Transportation (DOT), Game & Freshwater Fish Commission, Department of Community Affairs, Department of Agriculture and Consumer Services (Division of Forestry), Department of State (Division of Archives, History & Records Management), Treasure Coast Regional Planning Council, Martin County, Palm Beach County, Town of Jupiter, Jupiter Inlet District, Loxahatchee River Environmental Control District, South Indian River Water Management Control District, Northern Palm Beach County Improvement District, and Palm Beach County Farm Bureau. Additional members include representatives of local environmental groups, public entities within the basin, and private property owners. The LRMCC's primary focus is protecting the Wild and Scenic Loxahatchee River corridor, and they play an important role in ensuring that the preservation and enhancement goals of the Loxahatchee River Wild and Scenic Management Plan are realized by identifying and resolving coordination problems and enhancing communication between all interests in the river area. The LRMCC is currently conducting a stormwater study for the Northwest fork basin and developing a solid waste management plan for Jupiter Farms (FDEP 1999). Additional responsibilities include reviewing and making recommendations on proposed changes to the Plan, all permits required by Chapter 83-358, and all rules outlined in Chapter 83-358 for the protection, management, and operation of the river.

## Loxahatchee River Wild and Scenic River Management Plan

The Loxahatchee River Wild and Scenic River Management Plan identifies the current management actions necessary to maintain and enhance the Wild and Scenic Corridor. Tasks related to hydrologic restoration, vegetation management, land use regulation and visitor use management are presented, and the respective responsible entities are identified. A schedule of implementation for the next five years is also included. The next update of the plan is scheduled for 2005, and will be led by the Florida Department of Environmental Protection with assistance from the SFWMD.

## The Loxahatchee River Watershed Management Planning Committee

The Loxahatchee River Watershed Management Planning Committee (LRWMCP) is a multi-agency and community-based coalition that was established to define and evaluate the status of the entire watershed and propose actions to improve and protect the natural resources within the watershed. Throughout the planning process workshops and surveys were utilized to gather public input and the LRWMPC findings were published in the second draft of the Loxahatchee River Watershed Action Plan in October 1998.

## The Loxahatchee River Watershed Action Plan

The Loxahatchee River Watershed Action Plan was developed in 1998. This action plan outlines a comprehensive assessment of the current condition and needs of the seven major subbasins of the watershed, which are Jonathan Dickinson State Park/Kitching Creek, Coastal, Estuary, C-18 Canal/Corbett, Cypress Creek/Pal Mar, Groves, and Wild and Scenic/Jupiter Farms. The Plan includes over 60 proposed environmental projects in areas of educational activities, land management activities, and "turn-dirt" improvement projects. The Table below lists the proposed projects that have been completed to date.

| Project | Organization Responsible for Completing the Project |
|---|---|
| Wild & Scenic Stormwater Study | Loxahatchee River District in 2000 |
| Loxahatchee Slough Outparcel Acquisition | SFWMD and Palm Beach County in 2001 |
| Enhance Sheetflow in Corbett | Fish and Wildlife Conservation Commission in 2001 |
| Sandhill Crane Site Acquisition | SFWMD and Palm Beach County in 2001 |
| Sediment and Water Quality Analyses for Pesticides and Heavy Metals | Loxahatchee River District in 2001 |
| C-18 Triangle Tract Acquisition | SFWMD and Palm Beach County in 2001 |
| Loxahatchee River Boater's Guide | Jupiter Inlet District in 2001 |
| Provide Sewers to Urban Areas Still on Septic Tanks | Loxahatchee River District completed the Tequesta Peninsula sewer project in 2002. |
| Mitigation Program for Wetlands Impacted by Residential Development in Jupiter Farms and Palm Beach County Estates | FDEP in 2002 |

*This table was adapted from the University of Florida's EXTENSION Institute of Food and Agricultural Sciences Spring 2002 publication on the Loxahatchee River Watershed, Environmental Education and Awareness.

The following Table lists the projects outlined in the Loxahatchee River Watershed Action Plan that have transitioned from the conceptual stage to the implementation stage.

| Project | Responsible Organization |
|---|---|
| Atlantic Ridge Acquisition | SFWMD (partially completed) |
| Camp Murphy Restoration | FDEP Division of Recreation and Parks |
| Pinegroves Campground – Removal of Australian Pine & Natural Community Restoration | FDEP Division of Recreation and Parks |
| Develop Total Maximum Daily Loads for five waterbody sections in the Loxahatchee River watershed | FDEP |
| Jupiter Riverwalk | Town of Jupiter |
| Little Club Drive Stormwater Improvement Project | Martin County |
| Volunteer Stewardship Program | Palm Beach County ERM |
| Siltation/Sedimentation Study | Jupiter Inlet District |
| Beeline Corridor Land Acquisition | SFWMD and Palm Beach County |
| Loxahatchee Slough Restoration | SFWMD and Palm Beach County |
| Pal-Mar Acquisition Project | SFWMD, Martin County, and Palm Beach County |
| Cypress Creek/Pal-Mar/Groves Hydrologic Study | SFWMD, Martin County, and FDEP |
| Establish Minimum Flow to National Wild and Scenic NW Fork of the Loxahatchee River | SFWMD |

*This table was adapted from the University of Florida's EXTENSION Institute of Food and Agricultural Sciences Spring 2002 publication on the Loxahatchee River Watershed, Environmental Education and Awareness.

## The Loxahatchee River Preservation Initiative

The Loxahatchee River Preservation Initiative is the outgrowth of the FDEP's watershed management effort. The document was prepared by a sub-committee created by the Loxahatchee River Watershed Management Planning Committee to prioritize the turn-dirt projects outlined in the Loxahatchee River Watershed Action Plan and identify potential funding opportunities for the proposed projects. The committee reviewed the various projects outlined in the Action Plan and those identified after 1998, and focused on those classified as high priority based on the following criteria: potential positive impact on water quality, ability to proceed to the construction phase in a timely manner, and the availability of a local government sponsor to support the project. The projects included in the first phase of the initiative along with their local sponsor are listed in Table below, which came from the Loxahatchee River Preservation Initiative. It is believed that these projects will be ready for construction during fiscal year 2002-2003 (University of Florida, 2002). Detailed descriptions of the projects and a summary of their benefits and readiness can be found in the September 2001 Loxahatchee River Preservation Initiative.

| Rank Order | Project Name | Local Sponsor |
|---|---|---|
| 1 | Jones Creek Restoration | Town of Jupiter |
| 2 | Jupiter Farms Water Quality Improvements | South Indian River Water Control District |
| 3 | Loxahatchee Slough Restoration | Palm Beach County DERM |
| 4 | Kitching Creek Restoration | Martin County |
| 5 | Jonathan Dickinson State Park Water Quality Improvements. | JD Park/BSA/Town of Jupiter/LRECD |
| 6 | River Bend Park Hydrologic Restoration | Palm Beach County/SFWMD |
| 7 | Hell's Canal Hydrologic Restoration | FDEP - Parks |

## DEP Regional Aquatic Preserve Plan

The Aquatic Preserve Act was passed in 1975 to maintain submerged lands of exceptional beauty in their natural or existing conditions. The Loxahatchee River-Lake Worth Creek Aquatic Preserve is one of the four preserves established to protect freshwater flora and fauna, and is managed in two separate sections. The larger section, designated as the urban preserve, is comprised of Lake Worth Creek, the North Fork, Southwest Fork, and Northwest Fork up to river mile 5.5 while the smaller section, designated as a wilderness preserve, includes the upstream areas of the Northwest Fork. The major objectives of this plan include restoring and enhancing the natural condition of the resources within the urban preserve, as much as possible, and maintaining and enhancing the existing condition of the wilderness preserve. Specific information on the management objectives, how this plan will interface with all levels of government, non-government agencies, and interest groups, and the various uses of the preserve (public, private, commercial, scientific research, and environmental education) can be found in the document (Department of Natural Resources, 1984).

## Jonathan Dickinson State Park

The mission of Jonathan Dickinson State Park is to "provide resource-based recreation while preserving, interpreting, and restoring natural and cultural resources" (www.dep.state.fl.us/parks/district5/jonathandickinson/index.asp). The Park biologists conduct prescribed burning, exotic plant removal, wetland and upland restoration, and water quality monitoring. The Park also manages the cultural resources within its boundary, which include the preservation, restoration and research of historic buildings, archaeological sites, artifacts, and historical landscapes. Additional information on JDSP can be found at www.dep.state.fl.us/parks/district5/jonathandickinson/index.asp.

## Save Our Rivers Projects (SFWMD) – Land Acquisition

The Save Our Rivers program (SOR) and Water Management Lands Trust Fund were enacted by the Florida Legislature in 1981. The SOR act enables the water management districts to acquire lands necessary for water management, water supply, and the conservation and protection of water resources. Maps denoting acquired lands, potential land acquisition areas, and SOR project areas for the Loxahatchee River and Loxahatchee Slough are available at www.sfwmd.gov/org/clm/lsd/lsdproj.html.

## Canal 18 Restoration – Revegetation Program

The South Florida Water Management District is carrying out restoration activities within Canal 18 and Limestone Creek, which include the removal of exotic vegetation and planting of indigenous species, the creation of tidal wetlands, and reconnecting (and expanding) portions of the original Limestone Creek channel to C-18. Additional information on this program and a photograph of Limestone Creek prior to the construction of Canal 18 can be found at www.sfwmd.gov/org/clm/row/c18.html.

## Northern Palm Beach County Comprehensive Water Management Plan

The Northern Palm Beach County Comprehensive Water Plan was developed by the City of West Palm Beach and the SFWMD to outline mutual goals for the management of water resources in the Southern L-8, Western C-51, and C-18 basins. The plan outlines a

program of structural improvements to increase the storage and conveyance of surface water within and between the former basins, and the development of alternative water supply sources to meet the urban and environmental demands over the next 20 years. The project components are designed to reconnect the Loxahatchee Slough and the Northwest Fork of the Loxahatchee River to the regional water management system. Detailed information pertaining to the proposed projects can be found in Volumes 1 & 2 of the Plan (SFWMD, 2001). Volume I details the schedules, costs, and funding of the proposed projects over the next two to five years, and includes a list of related water management projects and agencies involved in cooperative efforts that support or supplement this plan. Volume II is a technical report summarizing the planning, modeling, and analyses that led to the recommended structural improvements.

## Northern Palm Beach County CERP Project Management Plan

The Northern Palm Beach County CERP Project Management Plan was developed by the U.S Army Corp of Engineers (USACE) and the SFWMD to outline the steps needed to increase water supply and improve water quality while maintaining flood protection. The Plan contains a number of elements that will be implemented in two parts. Part I includes the following six separable elements: Pal-Mar and J.W. Corbett Wildlife Management Area Hydropattern Restoration, L-8 Basin Modifications, C-51 and L-8 Reservoir, Lake Worth Lagoon Restoration, C-17 Backpumping and Treatment, and C-51 Back-pumping and Treatment. These elements were combined into a single project to address the interdependencies and tradeoffs between the different elements and provide a more efficient and effective design of the overall project. These projects will commence in 2001 and should be largely completed within twelve years. Part II includes the construction of the C-51 Regional Groundwater Aquifer Storage and Recovery (ASR) system and the L-8 Basin ASR system, and is scheduled to begin in 2009 and continue through 2020. These projects will provide additional long-term storage within the North Palm Beach County region. Detailed information pertaining to these projects can be found in the Northern Palm Beach County CERP Project Management Plan (SFMWD, 2002).

## Florida Fish & Wildlife Conservation Commission – Florida Marine Research Institute (FMRI)

The Florida Marine Research Institute (FMRI) conducted an electrofishing study, which commenced in 1990 and continued through 1992 to collect life history information such as age, growth rates, and reproductive status of snook inhabiting the downstream reaches of the Loxahatchee River. During this study, some baseline salinity information was also collected. As a follow up of this study, FMRI scientists conducted monthly, randomized pilot sampling utilizing a 180-meter long seine in the downstream portions of the Loxahatchee River and estuary. Unfortunately, due to the large size of the net the sampling was not very effective and only a few trials were completed. The data from these two studies is available upon request from FMRI.

In May 2002, FMRI scientists initiated a two-year project to ascertain the sizes and ages of snook that are being caught-and-released by saltwater anglers in Charlotte Harbor and Tequesta (http://www.floridamarine.org). There are a total of twelve sampling locations, three of which are located in the Loxahatchee River and estuary, that

will be randomly selected for monthly sampling. In 1999, the former rule on snook harvest size was modified to prohibit the harvest of snook thirty-four inches or longer. Since that rule change very little data has been collected on the lengths, ages, and abundance of undersized and oversized snook in Florida waters. In this study, FMRI biologists will simulate the angling community and its fishing habits during the open and closed snook seasons, and will collect data on the species captured, size, release status of the fish, and the mortality of snook above and below the legal catch size. In addition to this sampling, FMRI will seek additional help from volunteer anglers. These anglers will be randomly selected from the saltwater fishing license database and will be asked to fill out a log book during one of their fishing trips. The data collected by the biologists and anglers will be presented to the Florida Fish and Wildlife Conservation Commissioners for review to decide if the current management practices are effective at sustaining the snook population.

FMRI also conducts statewide manatee counts and is currently in the process of compiling and organizing all of their meta-data so that it may be posted on their website for public use. The annual manatee counts are conducted across the state with the assistance of twelve other agencies, research labs and universities (http://www.floridamarine.org). The counts are normally conducted on a sunny, windless day immediately following a prolonged cold front. The cooler temperatures cause the manatees to seek out warmer sites, which concentrates them into smaller areas, and the windless, sunny day encourages them to float making them more readily visible to those conducting the surveys. Results of the surveys conducted from 1991 through 1999 are available on the FMRI website. Once the meta-data site is completed, the public will be able search for specific data sets and will be given important information pertaining to those sets such as what was collected, when was it collected, and the type of methodology used.

## Palm Beach County DERM

Palm Beach County DERM has acquired more than 13,000 acres of the Loxahatchee slough through their Environmentally Sensitive Lands program for conservation and recreational purposes. An additional 1,125 acres of land located adjacent to the county lands were purchased by the SFWMD in 1999, and these lands are proposed to be managed by PBCDERM. PCBDERM and the District are also proposing to jointly conduct baseline (current) and post-construction/operation (G-160 Structure) vegetation and hydrological monitoring within the Loxahatchee Slough to assess the effectiveness of the first tier of improvements outlined in the North Palm Beach County Comprehensive Water Management Plan. The county will be responsible for conducting the field vegetation surveys while the District is responsible for installing the staff gauges and conducting landscape-level monitoring using aerial photography from Digital Orthographic Quad (DOQ) photos. The field based surveying is scheduled to commence in August or September 2002 and continue on a semi-annual basis (wet and dry season) through 2007. These surveys will be conducted at five sites within the Loxahatchee Slough, and at each location three permanent 3x3 meter plots containing representative plant communities will be established. The vegetation surveys will include water depth measurements, characterization of the macrophyte species present in each plot and their relative abundance, using either actual counts or a standard comparative index

(whichever is appropriate to the species). Annual reports summarizing the data and discussing the findings will be written by PBCDERM.

## Martin County

A portion of this was prepared by Kim Love, Martin County on March 11, 2002.

In 1994, the EPA initiated the Loxahatchee River Basin Wetland Planning Project to identify wetlands in the basin and provide information about the functions and values of these wetlands. The Martin County government was chosen to conduct the portion of the project located in Martin County, which covered approximately 77,000 acres. In 1998, Martin County, St. Johns River Water Management District (SJRWMD), and FDEP jointly funded a two-year watershed restoration study of the Kitching Creek watershed. Earth Tech was hired to conduct field measurements of hydrologic and water quality conditions, model surface water and ground water flows, and provide conceptual designs of potential alternatives that could improve water quality, restore the ecosystem, and reduce flooding. The objectives of the study included headwater revitalization, rehydration of disturbed wetlands in the Kitching Creek watershed, determining the feasibility of linking the wetlands, which were divided by the construction of Bridge Road (C.R. 708), tracking E-coli contamination entering JDSP from Kitching Creek, and the assessment of surface and groundwater flow and quality. Utilizing the information gathered from the field collections and model development, Earth Tech created a Watershed Management Master Plan for the Kitching Creek Basin. This Project will enhance surface water flows to the Loxahatchee River by raising average wetland waters by as much as 2 feet over an area exceeding 1,000 acres located north of the River. Water table elevations in these wetland areas will be increased by a similar amount and will serve to increase the groundwater contribution to the Loxahatchee River. The Master Management Plan is comprised of seven alternative plans, and three of these are summarized in the following sections. Detailed information pertaining to all of the plans and their recommended implementation schedule can be found in the Final Hydraulic Report of the Kitching Creek Water Quality Improvement Project.

One part of the overall project redirects Kitching Creek flows, which currently travel to Jenkins Ditch and cause erosion and flooding, southwest through wetlands into Kitching Creek's predevelopment flowway and a wetland system located south of 138$^{th}$ Street. This redirection will reduce flooding along 138$^{th}$ Street, Powerline Road, and Kitching Creek Road. These water management measures will be accomplished by blocking existing culverts under Bridge Road and installing new ones in different locations, possibly re-engineering a portion of Bridge Road, regrading existing drainage ditches and low quality wetlands to provide shallow, wide flowways, and installing stormwater treatment ponds, berms and other water control structures.

The East Creek Tributary Diversion Berm is a water management improvement structure located in the vicinity of the intersection of 138$^{th}$ Street and Powerline Avenue in Martin County. This project will create a diversion that redirects flows away from the populated areas along Powerline Avenue and Kitching Creek Road into the predevelopment flow way of Wilson Creek. This diversion will be accomplished by blocking existing culverts at the intersection of Powerline Avenue and Bridge Road, installing a new culvert under Bridge Road east of the intersection, and providing a 2-ft.

high berm to direct the water southeast toward Wilson Creek located within Jonathan Dickinson State Park.

The Flora Avenue water management improvements extend approximately 8,000 feet southward from the intersection of Flora Avenue and Bridge Road. Benefits of this project component are improvements in the water quality flowing into Jonathan Dickinson State Park property south and east of Flora Avenue and reductions in the level of flooding of Flora Avenue residences and businesses. Decreased flooding along Flora Avenue will be accomplished by raising an approximate 2000-ft section of the roadway and providing a new water quality structure adjacent to Flora Avenue. Stormwater from developed areas along the road will be routed to detention ponds for attenuation and sediment removal prior to discharge to Jonathan Dickinson State Park.

## Jupiter Inlet District

The Jupiter Inlet District (JID) was established by the Florida legislature in 1921 to maintain and preserve the navigability of the Jupiter Inlet and the Loxahatchee River downstream of Jonathan Dickinson State Park, and operate and maintain the northernmost portion of Jupiter Inlet Park. At four locations within Jonathan Dickinson State Park, boat traffic caused destruction of mangrove shorelines and the breaching of narrow divisions between adjacent canals. Those breaches “short cut” the historical meanders and allowed for more direct tidal influence upon the upstream reaches. In 1996-1997 the JID implemented an oxbow restoration project in the NW fork to restore more natural flow to the historic meandering sections of the River, improve water quality in the stagnant areas, reduce organic deposition in isolated oxbows, and increase the retention time of freshwater runoff and decrease saltwater intrusion. The four gaps were closed with rock and earthen dams to provide a hydraulic barrier, which was biologically and aesthetically compatible with JDSP. Pre-construction and post-construction studies determined that the closures resulted in lower salinity levels and longer response times for the upstream stations to experience increases in salinity.

Other projects associated with the Loxahatchee River and Estuary that are overseen by the Jupiter Inlet District include the implementation of the Loxahatchee River Management Plan, the Sim’s Creek enhancement project, seagrass bed monitoring, and preparation of the Loxahatchee River Boater’s Guide. In cooperation with Palm Beach County ERM, the JID completed a tidal creek enhancement program for one of the enhancement sites identified in the Sims Creek Enhancement Study (1993). The program consisted of exotic vegetation removal and the creation of a 2.05 acre mangrove-spartina wetland. The enhancement and restoration to the wetland portions of the site will provide additional habitat resources for fisheries and wildlife species and eliminate an exotic seed source that could spread to other portions of the watershed. In addition, a portion of Sims creek was dredged to clean out accumulated sediments. This dredging restored the creek to historic depths and provided more stable benthos, littoral zones, and maintainable traps for reducing sediment loads to the Loxahatchee River. The Loxahatchee River Boater’s Guide was completed in 2001, and the siltation/sedimentation study slated for the Loxahatchee estuary has progressed from the conceptual phase to the implementation phase.

## Treasure Coast Regional Planning Council (TCRPC)

The Treasure Coast Regional Planning Council was established in 1975 to promote cooperative efforts and communication between local units of government, representatives of major economic interests, and the public to promote health, safety, and general welfare of the citizenry and plan for future development of the Treasure Coast region. The Council is comprised of local elected and appointed officials, and is responsible for planning in Indian River, St. Lucie, Martin, and Palm Beach counties. To accomplish their mission, the TCRPC operates a variety of programs and planning functions related to growth management and development within the Treasure Coast Region. In 1994, the TCRPC conducted the portion of the Loxahatchee River Basin Wetland Planning Project that fell within Palm Beach County boundaries. The Palm Beach County portion of the project area included approximately 65,000 acres and included land that extended north to the Martin County border, east to the Florida Turnpike, south to Northlake Boulevard, and west to a north-south line located approximately one mile west of CR 711. A two-fold wetland assessment was utilized in the project, which involved remote analysis based on the interpretation of infrared aerial photography and field analysis. The wetlands were classified as high, medium, or low quality and the percentages were 73%, 13%, and 8%, respectively. The largest area of high quality wetlands was the Loxahatchee Slough. Further information on the Loxahatchee River Basin Wetland Planning Project can be found in the Technical Summary Document prepared by the TCRPC in July 1999, and additional information on the TCRPC can be found at www.tcrpc.org.

## City of West Palm Beach Water Catchment Area Advisory Committee

The City of West Palm Beach Water Catchment Area Advisory Committee was established in 1976 by the City Commission of West Palm Beach as outlined in Chapter 67-2169 passed by the Florida Legislature. The Committee is comprised of eight members, seven of which are appointed by the Mayor of West Palm Beach and the other is West Palm Beach's Director of Utilities, who is an ex-officio member. They are responsible for providing the City Commission "with advice and recommendations on all matter arising within the City of West Palm Beach and related areas which may, in any manner, impact or otherwise affect the preservation and environmental quality of the Water Catchment Area as a public water supply and significant wetland/environmental asset" (Selfridge, G.P., 2002 personal communication). More specifically, they advise the Committee on matters related to preserving an adequate water supply for the current and future residents of West Palm Beach, especially in regards to avoiding water supply shortages during times of prolonged drought, while ensuring that it is kept in its natural state for public use and enjoyment. It is the express intent of the City Commission that all issues, which could potentially impact the Water Catchment Area either directly or indirectly be submitted to the Committee for its review and recommendation before that issue is presented to the City Commission.

## South Indian River Water Control District

The South Indian River Water Control District (SIRWCD) was created in 1923 by an Act of the Florida Legislature. It encompasses 12,500 acres in Jupiter Farms, Egret Landing, Palm Beach County Estates, and the Jupiter Commerce Park. One of their primary

responsibilities is the management of storm water runoff to prevent damage to private property. District canals are utilized to transport excess rainwater via gravitational flow into natural holding areas such as the Loxahatchee slough, wetlands, and water conservation areas. Additional information on the SIRWCD can be found at www.sirwcd.org/index.html.

## Florida Inland Navigation District

The mission of the Florida Inland Navigation District is to perform the functions of the "local sponsor" of the Atlantic Intracoastal Waterway project. To meet this objective the District provides all lands required for the navigation project including rights of way and lands for the management of dredged materials removed from the waterway channel during dredging activities.

## Regional and Local Utilities

Utilities in the northern Palm Beach County area are diversifying supply sources to reduce reliance on regional water sources, including tapping the Floridan aquifer and developing water reuse systems. The three major water suppliers are the Town of Jupiter, Village of Tequesta, and Seacoast Utilities. The Town of Jupiter's water utility presently has a treatment capacity to produce over 27 MGD. Up to 12 MGD of this could be produced with water from the Floridan aquifer via reverse osmosis treatment. Jupiter has also developed a wellfield recharge system that involves skimming water from the C-18 Canal, when it is available, and routing it to storm water management systems in the vicinity of their wellfield to maintain water levels in these systems and increase recharge of the aquifer. The Village of Tequesta has also tapped the Floridan aquifer for public water supply using a 1.5 MGD reverse osmosis treatment facility. Seacoast Utility's relies on the surficial aquifer system for their source water public water supply. Water reuse has been implemented extensively in the northern Palm Beach County area. The two major providers, the Loxahatchee River Environmental Control District and Seacoast Utility, have waiting lists for reclaimed water. The Loxahatchee River Environmental Control District reuses over 5 MGD of reclaimed water for irrigation of 11 golf courses in the Jupiter/Tequesta area and the Abacoa Development. Seacoast Utility reuses almost 6 MGD for irrigation of 7 golf courses and other green space, and for ground water recharge.

## Indian River Lagoon National Estuary Preserve

The Indian River Lagoon National Estuary Preserve was established in 1990 under the EPA's National Estuary Program (NEP). Although the EPA administers the NEP, the Indian River Lagoon program decisions and activities are carried out by committees comprised of representatives from local government, federal agencies, academic institutions, industry and estuary user-groups, and private citizens. The priority management issues identified by the committee include human population growth, habitat loss and alteration, fisheries and other species decline/loss, freshwater inflow, increased concentrations of nutrients, toxic substances, and other conventional pollutants, sedimentation, and introduced/pest species (United States EPA, 2002). The excessive amounts of stormwater runoff transport large amounts of nutrients and sediments into the IRL, which in turn negatively impact benthic organisms, promote algae overgrowth, and

smother seagrass beds. In 1992, the Indian River NEP built a concrete sediment trap in a drainage system located adjacent to a developed portion of the shoreline to decrease the amount of sand, leaves, and litter from entering the lagoon, which has successfully captured about four tons of sediment in the last ten years. Due to the success of that sediment trap, others are being expanded to additional sections of the lagoon.

Indian River Lagoon – South Feasibility Study

The Indian River Lagoon South Feasibility Study was a joint Federal and State effort led by the United States Army Corps of Engineers (USACE) - Jacksonville District and the SFWMD to prepare a plan for restoration, protection and preservation of the water resources in Martin and St. Lucie counties. The Plan recommends the creation of approximately 13,000 acres of new reservoirs, 9,900 acres of wetland based treatment areas, 92,900 acres of natural storage and water quality treatment areas, and muck remediation and artificial habitat. These features will significantly reduce damaging watershed discharges into the St. Lucie estuary and Indian River Lagoon from C&SF canal structures, provide water quality treatment and storage in the natural system, and increase water supply, while maintaining flood control and the other objectives of the Central and Southern Florida Project. This Plan also defines the most appropriate placement for the reservoirs approved in the Comprehensive Everglades Restoration Plan (CERP). The proposed Pal-mar Complex and Cypress Creek Complex Natural Storage and Treatment Areas will both provide additional flow to the Loxahatchee Slough and River. The Pal-mar complex consists of approximately 17,143 acres of improved pasture with degraded wetlands located on the south side of C-44. It will serve as a reservoir for some of the excess flow that is currently discharged from Lake Okeechobee through the C-44 canal to the South Fork of the St. Lucie River and out to tide water when lake levels exceed USACE regulation schedules. Water stored in Pal-Mar or adjacent areas could potentially be used to supplement flow to the South Fork of the St. Lucie River and the Loxahatchee River during dry periods. Water stored in those areas will also supplement regional groundwater levels that may provide additional flow to the rivers. The Cypress Creek Complex consists of 32,639 acres of primarily improved pasture land and will provide additional flow to the South Fork of the St. Lucie River and Cypress Creek, a tributary which empties in the Northwest Fork of the Loxahatchee during periods of low rainfall. A copy of this document can be found at www.evergladesplan.org/pm/studies/irl/index.shtml.

## Manatee Recovery Plan

The goal of this plan is to assure the long-term viability of the Florida manatee in the wild, allowing initially for reclassification to threatened status and, ultimately, removal from the List of Endangered and Threatened Wildlife. The plan sets forth criteria, which when met, will ensure a healthy, self-sustaining population of manatees in Florida by reducing or removing threats to the species' existence. A comprehensive discussion on the current threats to manatees, the actions and strategies needed to achieve a healthy and sustainable manatee population, and the prioritization, delegation of responsibility, and implementation of the recovery tasks are discussed in great detail in the plan.

## The Loxahatchee Greenways Project

The Loxahatchee Greenways Project was carried out by The Conservation Fund, 1000 Friends of Florida, and the MacArthur Foundation. The project used GIS technology to identify regional greenway corridors that could connect the remaining pristine lands, and established a green infrastructure network that protects the resource base while still supporting the surrounding communities and sustaining the economy. Benefits of the Loxahatchee Greenways Project include protection of the River and its flora and fauna, protection of the wetland systems, water supply, recreational and educational opportunities, a reduction in the cost of future public services, and increases in property values. Planning agencies, businesses and communities agreed to incorporate the Loxahatchee Greenways Network into their conservation and development efforts.

## Friends of the Loxahatchee River

Friends of the Loxahatchee River was founded in 1995 to offer local citizens the opportunity to learn more about the River and its ecosystems. The mission of this organization is to provide environmental education opportunities, conduct aquatic research programs, and promote public involvement in river conservation efforts.

# References

Earth Tech, Inc., 1998. Kitching Creek Water Quality Improvements Project Objectives. Available [Online]: <http://www.martin.fl.us/GOVT/depts/psd/pss/earthtech/slide5.html>. [April 5, 2002].

Earth Tech, Inc., 2000. Final Hydraulic Report – Kitching Creek Water Quality Improvement Project. 142 pp.

Elsner, Mark, personal communication. Lead Planner, South Florida Water Management District, 3301 Gun Club Road, West Palm Beach, FL 33406.

FDEP, 1998. Loxahatchee River Watershed Action Plan. Florida Department of Environmental Protection, Second Draft, October 1998.

FDEP/SFWMD, 2000. Loxahatchee River Wild and Scenic River Management Plan, Plan Update June 2000. Florida Department of Environmental Protection and South Florida Water Management District. 126 pp.

FDEP Loxahatchee River Watershed page, 1999. Available [Online]: <http.www.dep.state.fl.us/southeast/ecosystem/EMAs/Lox/Lox/lox.htm>. [May 21, 2002].

Florida Inland Navigation District, lasted edited January 9, 2002. Available [Online]: <http://www.aicw.org/mission.htm>. [April 5, 2002].

Friends of the Loxahatchee, 1998. Available [Online]: <http://www.loxahatcheeriver.org/public/friends.html>. [April 4, 2002].

Grella, Michael, personal communication. Executive Director of the Jupiter Inlet District, 400 North Delaware Boulevard, Jupiter, FL 33458.

Jonathan Dickinson State Park, last updated March 28, 2002. Available [Online]: <http://www.dep.state.fl.us/parks/district5/jonathandickinson/index.asp> [April 5, 2002].

Love, Kim, personal communication. Water Resource Manager, Office of Water Quality. Martin County Administration Center, 2401 SE Monterey Road, Stuart, FL 34996.

Loxahatchee River Environmental Control District, 1998. Available [Online]: <http://www.loxahatcheeriver.org> [April 5, 2002].

LRWMPC, 2001. Loxahatchee River Preservation Initiative.

Martin County, 1998. Kitching Creek Water Quality Improvement Project – Project Overview. Available [Online]: <http://www.martin.fl.us/govt/depts/psd/pss/earthtech/overview.htm>. [April 5, 2002].

Palm Beach County Environmental Resource Management, Land Acquisition and Planning. Available [Online]: <http://www.co.palm-beach.fl.us/erm/divisions/stewardship/acquisition/index.htm>. [April 5, 2002].

Selfridge, Gordon P., personal communication. Chief Deputy County Attorney, Palm Beach County Attorney's Office, 301 North Olive Avenue, Suite 601, West Palm Beach, FL 33401.

SFWMD, 2002. Proposed Loxahatchee River Watershed Projects for 2003.

SFWMD, 2001. Agreement between Palm Beach County Environmental Resource Management and the South Florida Water Management District, Draft Agreement Revised December 10, 2001.

SFWMD, 2001. Northern Palm Beach County Comprehensive Water Management Plan, Final Draft January 2002.

SFWMD, 2000 Land Acquisition and Land Management Plan Projects. Available [Online]: <http://www.sfwmd.gov/org/clm/lsd/4_projects23.html>. [April 5, 2002].

SFWMD, Canal 18 Restoration – Revegetation Project. Available [Online]: <http://www.sfwmd.gov/org/clm/row/c18.html>. [April 4, 2002].

SFWMD, Save Our Rivers. Available [Online]: <http://www.sfwmd.gov/org/clm/lsd/lsd_sor.html>. [April 5, 2002].

SFWMD, Save Our Rivers Projects. Available [Online]: <http://www.sfwmd.gov/org/clm/lsd/lsdproj.html>. [April 5, 2002].

SFWMD, 2002. Proposed Loxahatchee River Watershed Projects for 2003.

South Indian River Water Control District, last modified August 11,1999. Available [Online]: <http://www.sirwcd.org/about.html>. [April 5, 2002].

The Conservation Fund, Loxahatchee Greenway Project, 2001. Available [Online]: <http://www.conservationfund.org/?article=2288&back=true>. [April 4, 2002].

Treasure Coast Regional Planning Council, 1999. Loxahatchee River Basin Wetland Planning Project for Palm Beach County. 186 pp.

Treasure Coast Regional Planning Council. Available [Online]: <http://www.tcrpc.org>. [April 5, 2002].

University of Florida, Extension Institute of Food and Agricultural Sciences, Spring 2002. Loxahatchee River Watershed, Environmental Education and Awareness.

USACE/SFWMD, 2001. Central and South Florida Indian River Lagoon – South Feasibility Study, Draft October 2001. United States Army Corp of Engineers and South Florida Water Management District. Electronic copy available at <http://www.evergladesplan.org/pm/studies/irl/index.shtml>.

USACE/SFWMD, 2002. Central and South Florida Comprehensive Everglades Restoration Plan – Northern Palm Beach County Project – Part 1, Draft February 2002. United States Army Corp of Engineers and South Florida Water Management District.

United States Environmental Protection Agency, Office of Water, last updated May 16, 2001. Loxahatchee River Basin Wetland Planning Project. Available [Online]: <http://www.epa.gov/ecoplaces/part2/region4/site21.html> [April 4, 2002].

United States Environmental Protection Agency, Office of Water, last updated February 28, 2002. Program Profiles: Indian River Lagoon. Available [Online]: <http://www.epa.gov/owow/estuaries/irl.htm>. [April 4, 2002].

Vose, Frederic E., personal communication. Research Administrator I, Florida Marine Research Institute, Tequesta Field Laboratory, 19100 S.E. Federal Highway, Tequesta, FL 33469.